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## NOTICE OF ALLOWANCE AND FEE(S) DUE

45594 7590 11/07/2008

NVIDIA C/O MURABITO, HAO & BARNES LLP  
TWO NORTH MARKET STREET  
THIRD FLOOR  
SAN JOSE, CA 95113

EXAMINER

HSU, JONI

ART UNIT

PAPER NUMBER

2628

DATE MAILED: 11/07/2008

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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10/646,076

08/22/2003

John S. Montrym

NVID-P000705

9603

TITLE OF INVENTION: TRANSPARENT ANTIALIASED MEMORY ACCESS

APPLN. TYPE	SMALL ENTITY	ISSUE FEE DUE	PUBLICATION FEE DUE	PREV. PAID ISSUE FEE	TOTAL FEE(S) DUE	DATE DUE
nonprovisional	NO	\$1510	\$0	\$0	\$1510	02/09/2009

**THE APPLICATION IDENTIFIED ABOVE HAS BEEN EXAMINED AND IS ALLOWED FOR ISSUANCE AS A PATENT. PROSECUTION ON THE MERITS IS CLOSED. THIS NOTICE OF ALLOWANCE IS NOT A GRANT OF PATENT RIGHTS. THIS APPLICATION IS SUBJECT TO WITHDRAWAL FROM ISSUE AT THE INITIATIVE OF THE OFFICE OR UPON PETITION BY THE APPLICANT. SEE 37 CFR 1.313 AND MPEP 1308.**

**THE ISSUE FEE AND PUBLICATION FEE (IF REQUIRED) MUST BE PAID WITHIN THREE MONTHS FROM THE MAILING DATE OF THIS NOTICE OR THIS APPLICATION SHALL BE REGARDED AS ABANDONED. THIS STATUTORY PERIOD CANNOT BE EXTENDED. SEE 35 U.S.C. 151. THE ISSUE FEE DUE INDICATED ABOVE DOES NOT REFLECT A CREDIT FOR ANY PREVIOUSLY PAID ISSUE FEE IN THIS APPLICATION. IF AN ISSUE FEE HAS PREVIOUSLY BEEN PAID IN THIS APPLICATION (AS SHOWN ABOVE), THE RETURN OF PART B OF THIS FORM WILL BE CONSIDERED A REQUEST TO REAPPLY THE PREVIOUSLY PAID ISSUE FEE TOWARD THE ISSUE FEE NOW DUE.**

### HOW TO REPLY TO THIS NOTICE:

#### I. Review the SMALL ENTITY status shown above.

If the SMALL ENTITY is shown as YES, verify your current SMALL ENTITY status:

A. If the status is the same, pay the TOTAL FEE(S) DUE shown above.

B. If the status above is to be removed, check box 5b on Part B - Fee(s) Transmittal and pay the PUBLICATION FEE (if required) and twice the amount of the ISSUE FEE shown above, or

If the SMALL ENTITY is shown as NO:

A. Pay TOTAL FEE(S) DUE shown above, or

B. If applicant claimed SMALL ENTITY status before, or is now claiming SMALL ENTITY status, check box 5a on Part B - Fee(s) Transmittal and pay the PUBLICATION FEE (if required) and 1/2 the ISSUE FEE shown above.

II. PART B - FEE(S) TRANSMITTAL, or its equivalent, must be completed and returned to the United States Patent and Trademark Office (USPTO) with your ISSUE FEE and PUBLICATION FEE (if required). If you are charging the fee(s) to your deposit account, section "4b" of Part B - Fee(s) Transmittal should be completed and an extra copy of the form should be submitted. If an equivalent of Part B is filed, a request to reapply a previously paid issue fee must be clearly made, and delays in processing may occur due to the difficulty in recognizing the paper as an equivalent of Part B.

III. All communications regarding this application must give the application number. Please direct all communications prior to issuance to Mail Stop ISSUE FEE unless advised to the contrary.

**IMPORTANT REMINDER: Utility patents issuing on applications filed on or after Dec. 12, 1980 may require payment of maintenance fees. It is patentee's responsibility to ensure timely payment of maintenance fees when due.**

# **PART B - FEE(S) TRANSMITTAL**

**Complete and send this form, together with applicable fee(s), to: Mail Mail Stop ISSUE FEE  
Commissioner for Patents  
P.O. Box 1450  
Alexandria, Virginia 22313-1450  
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**INSTRUCTIONS:** This form should be used for transmitting the ISSUE FEE and PUBLICATION FEE (if required). Blocks 1 through 5 should be completed where appropriate. All further correspondence including the Patent, advance orders and notification of maintenance fees will be mailed to the current correspondence address as indicated unless corrected below or directed otherwise in Block 1, by (a) specifying a new correspondence address; and/or (b) indicating a separate "FEE ADDRESS" for maintenance fee notifications.

CURRENT CORRESPONDENCE ADDRESS (Note: Use Block 1 for any change of address)

Note: A certificate of mailing can only be used for domestic mailings of the Fee(s) Transmittal. This certificate cannot be used for any other accompanying papers. Each additional paper, such as an assignment or formal drawing, must have its own certificate of mailing or transmission.

45594 7590 11/07/2008

**NVIDIA C/O MURABITO, HAO & BARNES LLP  
TWO NORTH MARKET STREET  
THIRD FLOOR  
SAN JOSE, CA 95113**

## **Certificate of Mailing or Transmission**

I hereby certify that this Fee(s) Transmittal is being deposited with the United States Postal Service with sufficient postage for first class mail in an envelope addressed to the Mail Stop ISSUE FEE address above, or being facsimile transmitted to the USPTO (571) 273-2885, on the date indicated below.

(Depositor's name)
(Signature)
(Date)

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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10/646,076 08/22/2003 John S. Montrym NVID-P000705 9603

TITLE OF INVENTION: TRANSPARENT ANTIALIASED MEMORY ACCESS

APPLN. TYPE	SMALL ENTITY	ISSUE FEE DUE	PUBLICATION FEE DUE	PREV. PAID ISSUE FEE	TOTAL FEE(S) DUE	DATE DUE
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nonprovisional NO \$1510 \$0 \$0 \$1510 02/09/2009

EXAMINER	ART UNIT	CLASS-SUBCLASS
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HSU, JONI 2628 345-568000

1. Change of correspondence address or indication of "Fee Address" (37 CFR 1.363).

- ☐ Change of correspondence address (or Change of Correspondence Address form PTO/SB/122) attached.
- ☐ "Fee Address" indication (or "Fee Address" Indication form PTO/SB/47; Rev 03-02 or more recent) attached. **Use of a Customer Number is required.**

2. For printing on the patent front page, list

- (1) the names of up to 3 registered patent attorneys or agents OR, alternatively, 1 \_\_\_\_\_
- (2) the name of a single firm (having as a member a registered attorney or agent) and the names of up to 2 registered patent attorneys or agents. If no name is listed, no name will be printed. 2 \_\_\_\_\_
- 3 \_\_\_\_\_

3. ASSIGNEE NAME AND RESIDENCE DATA TO BE PRINTED ON THE PATENT (print or type)

PLEASE NOTE: Unless an assignee is identified below, no assignee data will appear on the patent. If an assignee is identified below, the document has been filed for recordation as set forth in 37 CFR 3.11. Completion of this form is NOT a substitute for filing an assignment.

(A) NAME OF ASSIGNEE (B) RESIDENCE: (CITY AND STATE OR COUNTRY)

Please check the appropriate assignee category or categories (will not be printed on the patent) : ☐ Individual ☐ Corporation or other private group entity ☐ Government

4a. The following fee(s) are submitted:

- ☐ Issue Fee
- ☐ Publication Fee (No small entity discount permitted)
- ☐ Advance Order - # of Copies \_\_\_\_\_

4b. Payment of Fee(s); (Please first reapply any previously paid issue fee shown above)

- ☐ A check is enclosed.
- ☐ Payment by credit card. Form PTO-2038 is attached.
- ☐ The Director is hereby authorized to charge the required fee(s), any deficiency, or credit any overpayment, to Deposit Account Number \_\_\_\_\_ (enclose an extra copy of this form).

5. Change in Entity Status (from status indicated above)

- ☐ a. Applicant claims SMALL ENTITY status. See 37 CFR 1.27. ☐ b. Applicant is no longer claiming SMALL ENTITY status. See 37 CFR 1.27(g)(2).

NOTE: The Issue Fee and Publication Fee (if required) will not be accepted from anyone other than the applicant; a registered attorney or agent; or the assignee or other party in interest as shown by the records of the United States Patent and Trademark Office.

Authorized Signature \_\_\_\_\_

Date \_\_\_\_\_

Typed or printed name \_\_\_\_\_

Registration No. \_\_\_\_\_

This collection of information is required by 37 CFR 1.311. The information is required to obtain or retain a benefit by the public which is to file (and by the USPTO to process) an application. Confidentiality is governed by 35 U.S.C. 122 and 37 CFR 1.14. This collection is estimated to take 12 minutes to complete, including gathering, preparing, and submitting the completed application form to the USPTO. Time will vary depending upon the individual case. Any comments on the amount of time you require to complete this form and/or suggestions for reducing this burden, should be sent to the Chief Information Officer, U.S. Patent and Trademark Office, U.S. Department of Commerce, P.O. Box 1450, Alexandria, Virginia 22313-1450. DO NOT SEND FEES OR COMPLETED FORMS TO THIS ADDRESS. SEND TO: Commissioner for Patents, P.O. Box 1450, Alexandria, Virginia 22313-1450.

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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/646,076	08/22/2003	John S. Montrym	NVID-P000705	9603
45594	7590	11/07/2008	EXAMINER	
NVIDIA C/O MURABITO, HAO & BARNES LLP TWO NORTH MARKET STREET THIRD FLOOR SAN JOSE, CA 95113			HSU, JONI	
			ART UNIT	PAPER NUMBER
			2628	
			DATE MAILED: 11/07/2008	

## Determination of Patent Term Adjustment under 35 U.S.C. 154 (b) (application filed on or after May 29, 2000)

The Patent Term Adjustment to date is 353 day(s). If the issue fee is paid on the date that is three months after the mailing date of this notice and the patent issues on the Tuesday before the date that is 28 weeks (six and a half months) after the mailing date of this notice, the Patent Term Adjustment will be 353 day(s).

If a Continued Prosecution Application (CPA) was filed in the above-identified application, the filing date that determines Patent Term Adjustment is the filing date of the most recent CPA.

Applicant will be able to obtain more detailed information by accessing the Patent Application Information Retrieval (PAIR) WEB site (<http://pair.uspto.gov>).

Any questions regarding the Patent Term Extension or Adjustment determination should be directed to the Office of Patent Legal Administration at (571)-272-7702. Questions relating to issue and publication fee payments should be directed to the Customer Service Center of the Office of Patent Publication at 1-(888)-786-0101 or (571)-272-4200.

<b>Notice of Allowability</b>	<b>Application No.</b>	<b>Applicant(s)</b>	
	10/646,076	MONTRYM ET AL.	
	<b>Examiner</b>	<b>Art Unit</b>	
	JONI HSU	2628	

**-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address--**

All claims being allowable, PROSECUTION ON THE MERITS IS (OR REMAINS) CLOSED in this application. If not included herewith (or previously mailed), a Notice of Allowance (PTOL-85) or other appropriate communication will be mailed in due course. **THIS NOTICE OF ALLOWABILITY IS NOT A GRANT OF PATENT RIGHTS.** This application is subject to withdrawal from issue at the initiative of the Office or upon petition by the applicant. See 37 CFR 1.313 and MPEP 1308.

1. ☒ This communication is responsive to papers received September 4, 2008.
2. ☒ The allowed claim(s) is/are 1-23,25 and 27-44.
3. ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
  - a) ☐ All    b) ☐ Some\*    c) ☐ None    of the:
    1. ☐ Certified copies of the priority documents have been received.
    2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
    3. ☐ Copies of the certified copies of the priority documents have been received in this national stage application from the International Bureau (PCT Rule 17.2(a)).

\* Certified copies not received: \_\_\_\_\_.

Applicant has THREE MONTHS FROM THE "MAILING DATE" of this communication to file a reply complying with the requirements noted below. Failure to timely comply will result in ABANDONMENT of this application.

**THIS THREE-MONTH PERIOD IS NOT EXTENDABLE.**

4. ☐ A SUBSTITUTE OATH OR DECLARATION must be submitted. Note the attached EXAMINER'S AMENDMENT or NOTICE OF INFORMAL PATENT APPLICATION (PTO-152) which gives reason(s) why the oath or declaration is deficient.
5. ☐ CORRECTED DRAWINGS ( as "replacement sheets") must be submitted.
  - (a) ☐ including changes required by the Notice of Draftsperson's Patent Drawing Review ( PTO-948) attached
    - 1) ☐ hereto or 2) ☐ to Paper No./Mail Date \_\_\_\_\_.
  - (b) ☐ including changes required by the attached Examiner's Amendment / Comment or in the Office action of Paper No./Mail Date \_\_\_\_\_.

**Identifying indicia such as the application number (see 37 CFR 1.84(c)) should be written on the drawings in the front (not the back) of each sheet. Replacement sheet(s) should be labeled as such in the header according to 37 CFR 1.121(d).**
6. ☐ DEPOSIT OF and/or INFORMATION about the deposit of BIOLOGICAL MATERIAL must be submitted. Note the attached Examiner's comment regarding REQUIREMENT FOR THE DEPOSIT OF BIOLOGICAL MATERIAL.

**Attachment(s)**

- |   |  |
|---|--|
| <ol style="list-style-type: none"> <li>1. <input type="checkbox"/> Notice of References Cited (PTO-892)</li> <li>2. <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)</li> <li>3. <input checked="" type="checkbox"/> Information Disclosure Statements (PTO/SB/08),<br/>Paper No./Mail Date <u>9/16/08</u></li> <li>4. <input type="checkbox"/> Examiner's Comment Regarding Requirement for Deposit<br/>of Biological Material</li> </ol> | <ol style="list-style-type: none"> <li>5. <input type="checkbox"/> Notice of Informal Patent Application</li> <li>6. <input type="checkbox"/> Interview Summary (PTO-413),<br/>Paper No./Mail Date _____.</li> <li>7. <input type="checkbox"/> Examiner's Amendment/Comment</li> <li>8. <input checked="" type="checkbox"/> Examiner's Statement of Reasons for Allowance</li> <li>9. <input type="checkbox"/> Other _____.</li> </ol> |
|---|--|

## **DETAILED ACTION**

### ***Continued Examination Under 37 CFR 1.114***

1. A request for continued examination under 37 CFR 1.114, including the fee set forth in 37 CFR 1.17(e), was filed in this application after final rejection. Since this application is eligible for continued examination under 37 CFR 1.114, and the fee set forth in 37 CFR 1.17(e) has been timely paid, the finality of the previous Office action has been withdrawn pursuant to 37 CFR 1.114. Applicant's submission filed on September 4, 2008 has been entered.

### ***Information Disclosure Statement***

2. The information disclosure statement (IDS) submitted on September 16, 2008 was filed after the mailing date of the application on August 22, 2003. The submission is in compliance with the provisions of 37 CFR 1.97. Accordingly, the information disclosure statement is being considered by the examiner.

### ***Response to Arguments***

3. Applicant's arguments, see p. 15-19, filed September 4, 2008, with respect to Claims 1-23, 25, and 27-44 have been fully considered and are persuasive. The 35 U.S.C. 103(a) rejections of Claims 1-23, 25, 27-35, and 38-42 and the objections to Claims 36, 37, 43, and 44 have been withdrawn.

### ***Allowable Subject Matter***

4. Claims 1-23, 25, and 27-44 are allowed.

The following is an examiner's statement of reasons for allowance:

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5. Applicant has amended all of the independent claims to include subject matter that was indicated as allowable in the previous Office Action, and therefore all the claims now contain allowable subject matter.

6. With regard to independent method Claims 1, 9, 21, 28, 30, and 32, they recite accessing, reading, or writing data within the frame buffer. Therefore, the claimed methods transform a physical object (frame buffer) to a different state. Therefore, the claimed methods are directed to statutory subject matter.

7. The closest prior art (Morein US006188394B1) teaches method for providing antialiased memory access (c. 2, ll. 46-47; c. 4, ll. 9-13), method comprising receiving request to access memory address (c. 4, ll. 9-13). Pointer that is stored in **buffer location** (memory address) corresponding to particular pixel points to selected address (physical address) in sample memory (frame buffer) utilized for antialiasing (c. 2, ll. 10-11, 18-22). So, pointer translates or transforms buffer location (memory address) that it is stored in into selected address (physical address) in sample memory (frame buffer) utilized for antialiasing (c. 2, ll. 10-11, 18-22), memory address is associated with pixel (c. 2, ll. 19-20), at least 1 physical address is associated with plurality of subpixels for pixel and generated using frame buffer 36 (c. 2, ll. 19-23), frame buffer (sample memory 38) is single memory having data associated with plurality of subpixels (samples), plurality of subpixels correspond to at least 1 pixel of frame buffer 36 (c. 2, ll. 19-23, 25-31); accessing data associated with subpixel at least 1 physical address within frame buffer (c. 4, ll. 9-13). However, Morein does not teach frame buffer 36 is virtual frame buffer and determining if memory address is in virtual frame buffer, if so, performing transforming and accessing, and

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wherein a base address of said frame buffer is the same as a base address of said virtual frame buffer.

8. Another prior art (Johns US006366289B1) teaches if memory address is in virtual frame buffer, memory address is transformed and driver manages memory to access data at transformed address (c. 16, ll. 15-23, 55-67), if memory address is not in virtual frame buffer, then driver manages memory to access data at memory address (c. 15, ll. 56-62). So, since different operations are performed depending on whether or not memory access is within virtual frame buffer, this means there is determination as to whether memory access is within virtual frame buffer. Johns teaches determining if memory address is within virtual frame buffer and, if so, performing transforming and accessing (c. 16, ll. 15-23, 55-67). One physical address is associated with pixel and generated using virtual frame buffer (c. 16, ll. 15-23, 55-67).

However, Johns does not teach that at least one physical address is associated with subpixels, wherein subpixels correspond to at least one pixel of said virtual frame buffer, and wherein a base address of said frame buffer is the same as a base address of said virtual frame buffer; and accessing data associated with a subpixel at the physical address within the frame buffer.

9. Another prior art (Fuchs) teaches pixel address (x, y) is subdivided into grid of subpixels so each subpixel has address of form (x+xoffset, y+yoffset) (p. 119, second col., 4<sup>th</sup> para).

However, Fuchs does not teach a virtual frame buffer.

10. Any comments considered necessary by applicant must be submitted no later than the payment of the issue fee and, to avoid processing delays, should preferably accompany the issue fee. Such submissions should be clearly labeled "Comments on Statement of Reasons for Allowance."

***Prior Art of Record***

The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

1. Morein (US006188394B1) teaches determining if a pixel sample set, which results from oversampling, can be reduced to a compressed sample set, where the compressed sample set contains information describing a corresponding pixel (c. 2, ll. 9-15).
2. Johns (US006366289B1) teaches a virtual frame buffer controller that maps requests for pixels in a frame buffer address format to addresses of pixels in blocks scattered randomly in physical memory (c. 2, ll. 64-66).
3. Fuchs, H., Goldfeather, J., Hultquist, J., Spach, S., Austin, J., Brooks, F., Eyles, J., and Puton, J. July 1985. "Fast Spheres, Shadows, Textures, Transparencies, and Image Enhancements in Pixel-planes," ACM SIGGRAPH Computer Graphics, *Proceedings of the 12<sup>th</sup> annual conference on Computer graphics*, Volume 19 Issue 3, 111-120.

Fuchs teaches anti-aliasing by using a method wherein each pixel (x, y) is subdivided into a grid of subpixels so that each subpixel has an address of the form (x+xoffset, y+yoffset) (p. 119, second col., 4<sup>th</sup> para).

***Conclusion***

Any inquiry concerning this communication or earlier communications from the examiner should be directed to JONI HSU whose telephone number is (571)272-7785. The examiner can normally be reached on M-F 8am-5pm.

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If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Kee Tung can be reached on 571-272-7794. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/Kee M Tung/  
Supervisory Patent Examiner, Art Unit 2628

JH